Amendment to the Claims

IN THE CLAIMS:

Claims 1-51 (Previously cancelled)

52. (Currently amended) A method of supplying to the central nervous system of a human patient a peptide that binds an opioid receptor, comprising:

(a) obtaining autologous muscle cells from the patient and preparing a pure *in vitro* ~~in vitro~~ culture of myoblasts ~~myogenic cells~~;

(b) transducing the culture of (a) with DNA encoding the peptide, such that the myoblasts ~~myogenic cells~~ express the peptide, then

(c) introducing the transduced myoblasts ~~myogenic cells~~ as a suspension to a muscle of the same human patient in a form that allows fusion with and intracellular expression of the peptide in pre-existing muscle cells of the human patient, the muscle selected from the group consisting of a paraspinal muscle, levator scapulae muscle, muscle between laminae IV and V of the spinal cord and neck muscle, so that the peptide is produced in proximity to the spinal cord of the patient.

53. (Currently amended) The method of claim 52, wherein step (a) comprises the mechanical stimulation of the human patient's skeletal muscle tissue to produce a reservoir of satellite cells prior to removal of the satellite cells for the *in vitro* ~~in vitro~~ culture.

54. (Previously presented) The method of claim 53, wherein the mechanical stimulation is carried out by numerous needle probings or by sonication.

55. (Previously presented) The method of claim 53, wherein the satellite cells are allowed to develop for about 3 days after mechanical stimulation and before their harvest.

56. (Previously presented) The method of claim 52, wherein more than 1 billion cells are cultured for administration into the patient.

57. (Currently amended) The method of claim 52, wherein step (c) comprises injecting the transduced myoblasts ~~myogenic cells~~ diagonally through muscle fibers.

58. (Previously presented) The method of claim 52, wherein large chondroitin-6-sulfate proteoglycan is added to the suspension of cells prior to administering the cells to the patient.

59. (Previously presented) The method of claim 58, wherein large chondroitin-6-sulfate proteoglycan is added to a final concentration of between about 5 micromolar to about 5 millimolar.

60. (Previously presented) The method of claim 58, wherein insulin is added to the suspension of cells prior to administrating the cells to the patient.

61. (Currently amended) A method of supplying to the central nervous system of a patient a peptide that binds an opioid receptor, comprising:

(a) obtaining allogenic muscle cells from a human donor and preparing a pure *in vitro* ~~in vitro~~ culture of myoblasts;

(b) transducing the culture of (a) with DNA encoding the peptide, such that the myoblasts ~~myogenic cells~~ express the peptide, then

(c) introducing at least 1 billion cells from (b) as a suspension into a patient by surgical implantation ~~muscle or into a region that contains fat cells~~, in the presence of

chrondroitin sulfate~~a form that allows fusion with and intracellular expression of the peptide in pre-existing muscle cells or fat cells of the human patient~~.

62. (Currently amended) The method of claim 61, wherein step (a) comprises the mechanical stimulation of a human donor's skeletal muscle tissue to produce a reservoir of satellite cells prior to removal of the satellite cells for the *in vitro* ~~in vitro~~ culture.

63. (Previously presented) The method of claim 62, wherein the mechanical stimulation is carried out by numerous needle probings or by sonication.

64. (Previously presented) The method of claim 62, wherein the satellite cells are allowed to develop for about 3 days after mechanical stimulation and before their harvest.

65. (Previously presented) The method of claim 61, wherein about 10 billion progeny myoblast cells are cultured for administration into the patient.

66. (Previously presented) The method of claim 61, wherein step (c) comprises injecting the transduced myogenic cells diagonally through muscle fibers.

67. (Previously presented) The method of claim 61, wherein large chondroitin-6-sulfate proteoglycan is added to the suspension of cells prior to administering the cells to the patient.

68. (Previously presented) The method of claim 67, wherein large chondroitin-6-sulfate proteglycan is added to a final concentration of between about 5 micromolar to about 5 millimolar.

69. (Previously presented) The method of claim 67, wherein insulin is added to the suspension of cells prior to administrating the cells to the patient.

70. (Previously presented) The method of claim 61, wherein the cells are introduced into a region that contains fat cells.